

REMARKS

The applicant respectfully request reconsideration in view of the following remarks. The applicant has corrected an obvious error in the specification with respect to Table 1. It appears that table 1 of the English translation application is not correct, with respect to polymer P1. Table 1 does not show that this polymer contains 10" % of monomer "IA1". This value is contained in the original German PCT application document as originally filed. The applicant has corrected Table 1 to reflect what was filed in the PCT application (see the published PCT Table 1). No new matter has been added.

Response to Interview Summary

The applicant thanks the Examiner for conducting the interview on November 19, 2009. The applicant and the Examiner discussed claims 1-6, 8, and 9. An agreement with respect to the claims was not reached. In the interview the applicants discussed with the Examiner the outstanding 112, first rejection. The applicant stated that the R groups provide the solubilizing effect of the polymer. The Examiner further explained the basis for the rejection. The prior art indicates that solubilizing groups on the aryl group will increase the solubility of the polyarylene vinylene. The Examiner stated that the instant specification only provides examples using the solubilizing agent, the original specification does not provide enablement for unsubstituted aryl groups having the claimed solubility property. The applicant believes that the specification is enabled for unsubstituted aryl groups for the reasons stated below.

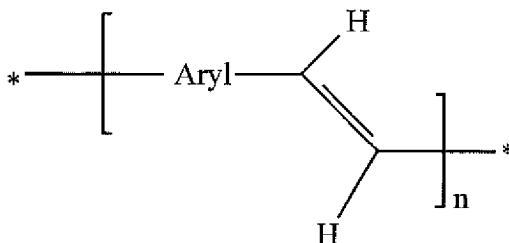
Claims 1-6, 8, and 9 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for specific bis(halomethyl)arylenes and compounds of

formula I. The applicant respectfully traverses this rejection. The Examiner stated that the specification does not reasonably provide enablement for the broad genus claimed.

Polyparaphenylenesvinylenes" (PPVs) can be divided into the following four groups:

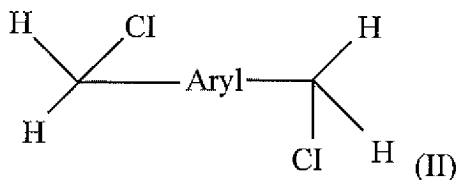
- 1) Group 1: Neither substituted on the arylene groups nor substituted on the vinylene groups (prior art).
- 2) Group 2: Not substituted on the vinylene groups but substituted on the arylene groups (prior art).
- 3) Group 3: Not substituted on the arylene groups but substituted on the vinylene groups (inventive).
- 4) Group 4: Substituted on the arylene groups and on the vinylene groups (inventive).

According to the prior art (Groups 1 and 2 above), polyarylene-vinylenes are known having the following repeating units:



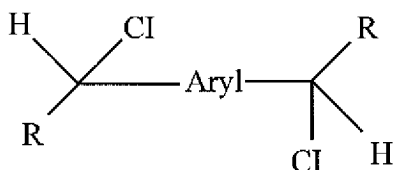
wherein the "Aryl-group" can contain the solubilising groups if Aryl is substituted (Group 2) and unsubstituted (Group 1) and the vinylene-group only contains two hydrogen atoms as substituents.

The above-described polymers can be obtained by polymerizing the following monomer (II):

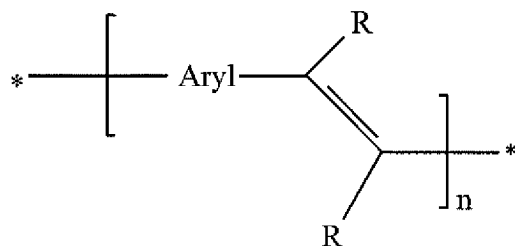


During the polymerization, on both sides of the monomer unit the chlorine atom and a hydrogen atom leave. Consequently, the resulting polymer has two hydrogen atoms as substituents at the vinylene group.

According to the present invention, beside the monomer of formula (II) as described above, which is a “bis(halomethyl)arylene” as described in pending claim 1 of the present application, additionally the following monomer of formula (I) is used:



which leads to the following repeating unit of polymer:



Therefore, the polymer of the present invention contains units which have two solubilizing groups R as substituents at the vinylene group. Independent from these groups, the polymer can optionally contain solubilizing groups at the arylene group if the arylene group is substituted (Group 4) and if no solubilizing groups are present on the unsubstituted arylene group (Group 3), but core of the invention is that the polymer comprises vinylene groups with solubilizing groups R.

Both groups R contained in formula (I) are not “reactive groups” as stated by the Examiner, which leave the compound during the polymerization reaction, but are solubilizing

groups which remain part of the compound during the polymerization reaction and are therefore also part of the resulting polymer. Consequently, the statement of the Examiner, according to which the instant claims allow for both substituted and non-substituted aryl groups on the bis(halomethyl)arylene and the compound of formula (I), is not correct, because, as pointed out above, the vinylene-group derived from the monomer of formula (I) contains two solubilizing groups R and is therefore substituted and not unsubstituted. The effect of the units of formula (I) as part of the inventive polymers is clearly demonstrated in the working examples of the present application. According to the examples, the unit of formula (I) has a significant influence on the molecular weight of the resulting polymers and consequently on their solubility as well as viscosity.

With respect to Group 1, the applicant believes that these polymers are absolutely insoluble in all known organic solvents.

The polymers of Group 2 are soluble in most of the known organic solvents as can be seen from the comparative examples of the present application, but their solubility is not very high (especially of C1, C4 and C5 of table 1 of the applicant's specification), because these polymers "gelled". A comparison of these comparative polymers C1, C4, and C5 with the corresponding inventive polymers P1, P4 and P5 clearly shows the solubilizing effect of the solubilizing groups contained on the vinylene groups. P1 and C1, P4 and C4 as well as P5 and C5 are identical with respect to the known monomers (M1 to M6). They only differ in that the inventive polymers additionally contain a small amount of the "inventive monomer" (i.e. IA1 and IA2). Nevertheless this small amount has a significant influence on the properties of the resulting polymers (especially the molecular weight, the viscosity and consequently also on the solubility) as can be seen from table 1.

Nevertheless, the following statement is possible with respect to this group of polymers: Their solubility is better than the solubility of the polymers of group 1, which are absolutely insoluble.

The inventive polymers of group 3 are better soluble than the polymers of group 1 and that the inventive polymers of group 4 are better soluble than the polymers of group 2. Consequently, the applicant believes that it is not necessary to compare the polymers of groups 2 and 3 as requested by the Examiner.

The applicants do not have to have examples to Group 3 for the claims to be enabled (see In re Strahilevitz, 212 USPQ 561, 563, 564 (CCPA 1982), In re Stephens, 188 USPQ 659, 661 (CCPA 1976), In re Honns and Sims, 150 USPQ 652 (CCPA 1966), In re Marzocchi and Horton, 169 USPQ 367 (CCPA 1971).

The court stated in re Stephens, supra at page 661,

The solicitor variously interprets 'specific embodiment' required by the rule as 'a complete example specifying all necessary details - including the essential materials, particle size where relevant and proportions, as well as the relevant specific parameters or conditions of the process and the essential physical characteristics of the product' and as a 'specific example' or what is commonly referred to as a working example. A working example, however, is not always necessary. In re Long, 54 CCPA 835, 368 F. 2d 892, 151 USPQ 640 (1966). ... The test is whether there is sufficient working procedure for one skilled in the art to practice the claimed invention without undue experimentation.

In addition to the presence or absence of a working example, relevant considerations are the nature of the invention, the state of the prior art, and the relative skill of those in that art. In re Honn, 53 CCPA 1449, 364 F.2d 454, 150 USPQ 652 (1966). (emphasis added)

The Court of Custom Appeals stated at page 369 in re Marzocchi and Horton,

169 USPQ 367, 369 (CCPA 1971),

The first paragraph of §112 requires nothing more than objective enablement. How such a teaching is set forth, either by the use of illustrative examples or by broad terminology, is of no importance. (emphasis added)

The Court of Custom Appeals stated at page 563 in re Strahilevitz, 212 USPQ 561, 563, 564 (CCPA 1982),

We recognize that working examples are **desirable** in complex technologies and that detailed examples can satisfy the statutory enablement requirement. Indeed, the inclusion of such examples here might well have avoided a lengthy and, no doubt, expensive appeal. Nevertheless, as acknowledged by the board, examples are not required to satisfy section 112, first paragraph rejection. (emphasis added)

In fact as discussed in the cases above, a patent application does not need to contain any examples for the application to be enabled. However, the applicants' application contains 12 examples (P1, P2(1a), P2 (1b), P2 (1c), P2(2), P2(3), P2(4), P3, P4(1), P4(2), P5(1) and P5(2)). The applicants believe that it is clear from their specification, that there is adequate support and enablement for the claims.

The Court of Custom Appeals further stated at page 369 in In re Marzocchi and Horton, 169 USPQ 367, 369 (CCPA 1971),

As a matter of Patent Office practice, then, a specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as in compliance with the enabling requirement of the first paragraph of §112 unless there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support. (In re Marzocchi and Horton, 169 USPQ 367, 369 (CCPA 1971). (emphasis added)

In view of the above response, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due in connection with the filing of this response, the Commissioner is authorized to charge or credit any overpayment to Deposit Account No. 03-2775 under Order No. 14113-00028-US, from which the undersigned is authorized to draw.

Respectfully submitted,

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